

Claims

- 1 1. A flame retardant polymer composition comprising
 2
 3 a) 20 - 60 percent by weight of a thermoplastic
 4 and/or cross-linked or cross-linkable elastomer
 5
 6 and
 7
 8 b) as a flame retardant agent 40 - 80 percent by
 9 weight either of an aluminium hydroxide with the
 10 material values
 11
 12 - specific surface according to BET 3 - 5 m²/g
 13 - mean grain size d₅₀ 1.0 - 1.5 μm
 14 - residual moisture 0.1 - 0.4 %
 15 - oil absorption 19 - 23%
 16 - water absorption 0.4 - 0.6 ml/g
 17
 18 or of an aluminium hydroxide with the material values
 19 - specific surface according to BET 5 - 8 m²/g
 20 - mean grain size d₅₀ 0.8 - 1.3 μm
 21 - residual moisture 0.1 - 0.6 %
 22 - oil absorption 21 - 25 %
 23 - water absorption 0.6 - 0.8 ml/g.

- 1 2. The flame retardant polymer composition of claim 1,
 2 wherein the aluminum hydroxide has a gibbsite
 3 structure with, additionally, 0.5 to 1.5 % boehmite.

1 3. A flame retardant polymer composition according to
2 claim 1, wherein the polymer described under a)
3 consists of the group of polyolefins , vinyl polymers,
4 copolymers or terpolymers and grafted
5 polymethylacrylate, natural and synthetic rubbers and
6 their mixtures.

1 4. A process for producing a flame retardant agent, the
2 flame retardant agent comprising

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4 (I) an aluminum hydroxide having:

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6 (i) a BET specific surface area of 3 - 5 m²/g,

7 (ii) a mean grain size d₅₀ of 1.0 - 1.5 μm,

8 (iii) a residual moisture of 0.1 - 0.4 %,

9 (iv) an oil absorption of 19 - 23%, and

10 (v) a water absorption of 0.4 - 0.6 ml/g; or

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12 (II) an aluminum hydroxide having:

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14 (i) a BET specific surface area of 5 - 8 m²/g,

15 (ii) a mean grain size d₅₀ of 0.8 - 1.3 μm,

16 (iii) a residual moisture of 0.1 - 0.6 %,

17 (iv) an oil absorption of 21 - 25 %, and

18 (v) a water absorption of 0.6 - 0.8 ml/g;

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20 comprising mill drying a filter-moist aluminum
21 hydroxide having a mean grain size of 0.8 to 1.5 μm
22 obtained by precipitation and filtration in a
23 turbulent hot air stream.

- 1 5. The process of claim 4, wherein the mill drying is
2 effected by passing the filter-moist aluminum
3 hydroxide in a hot air stream at a throughput of 3000-
4 7000 Bm³/h through a rotor rotating at a
5 circumferential speed of 40 - 140 m/sec, and whirling
6 the hot air stream at a temperature of 150 - 450 °C at
7 a Reynolds factor greater than 3000.
- 1 6. The process of claim 5, wherein the circumferential
2 speed of the rotor is greater than 60 m/sec, thereby
3 converting agglomerates contained in the filter-moist
4 aluminum hydroxide into primary crystals.
- 1 7. The process of claim 6, wherein the energy introduced
2 in the hot air stream is in excess of 5000 Bm³/h, at a
3 temperature greater than 270°C and a circumferential
4 speed of the rotor greater than 70m/sec, thereby
5 converting the gibbsite particles on the surface of
6 the flame retardant agent into boehmite.
- 1 8. A method of producing coated electrical conductors and
2 cables comprising extruding the flame retardant
3 polymer composition of claim 1.
- 1 9. The method of claim 4 wherein after mill drying, the
2 filter-moist aluminum hydroxide grain distribution is
3 largely retained, and the BET surface is increased by
4 at least 20 %.
- 1 10. The composition of claim 3, wherein the melt flow
2 index of the polymer composition is increased by at
3 least 20 % compared to standard aluminum hydroxides.